SEQUENCE LISTING **AP20 Rec'd PCT/PTO 24 JAN 2006**

<110> INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE

<120> USE OF THE *SILVER* GENE FOR THE AUTHENTIFICATION OF
THE ORIGINAL BREED OF ANIMAL POPULATIONS AND
THEIR DERIVATIVE PRODUCTS

<130> IFB 03 BT INR SILV

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<170> PatentIn version 3.1

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Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu Ser Tyr Thr
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Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg Ala Leu Thr
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Leu Gly Val Ser Arg Gln Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu
            35                  40                  45

Tyr Pro Glu Trp Thr Glu Ser Gln Gly Pro Asp Cys Trp Arg Gly Gly
    50                  55                  60

His Ile Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu Ile Gly Ala
65                  70                  75                  80

Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val
                85                  90                  95

Leu Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn Gly
            100                 105                 110

Ser Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp
        115                 120                 125

Thr Cys Ile Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro Leu Ser
    130                 135                 140

Gln Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp Asp Gln Tyr Trp
145                 150                 155                 160

Gln Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly Thr Asp Lys
                165                 170                 175
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Ile Thr Asp Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala
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Leu Asp Gly Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe
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Ala Leu Gln Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu
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Ser Tyr Thr Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg
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Ala Leu Thr Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala
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Gln Val Val Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser
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Pro Val Pro Gly Thr Thr Asp Arg His Val Thr Thr Ala Glu Ala Pro
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Pro Gly Gln Val Pro Thr Ala Glu Ala Pro Gly Thr Thr Val Gly Trp
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Val Pro Thr Thr Glu Asp Val Gly Thr Thr Pro Glu Gln Val Ala Thr
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Ser Lys Val Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala
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Ser Ala Glu Ile Leu Gln Ala Val Ser Ser Ser Glu Gly Asp Ala Phe
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Glu Leu Thr Val Ser Cys Gln Gly Gly Leu Pro Lys Glu Ala Cys Met
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Asp Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu Cys Gln
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Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr Gln
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Leu Leu His Val Ala Leu Met Gly Val Leu Leu Ala Val Arg Thr Thr
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Glu
25


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                Gly Pro Arg Asp Arg Asp Trp Leu Gly Val Ser Arg Gln
                 30                          35
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ctc aga att aaa gca tgg aac aga cag ctg tat cca gag tgg aca gaa    2411
Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu Tyr Pro Glu Trp Thr Glu
 40              45                      50
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agc cag ggg cct gac tgc tgg aga g gtaggaactt ggcaatttcc            2456
Ser Gln Gly Pro Asp Cys Trp Arg
 55              60
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ttcag gt  ggc cac ata tcc ctg aag gtc agc aat gat ggg cct aca ctg    2625
           Gly Gly His Ile Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu
            65                      70                      75
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att ggg gca aat gct tcc ttc tct att gcc ttg cac ttt cct aaa agc    2673
Ile Gly Ala Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser
     80                      85                      90
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caa aag gtg ctg cca gat ggg cag gtc atc tgg gcc aac aac acc atc    2721
Gln Lys Val Leu Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile
 95                  100                     105
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atc aat g gtgagtacct ctccgcctcc ttcccaaggt ccagaatccc tggtatcccc    2778
Ile Asn
110
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ttcag gg  agc cag gtg tgg gga gga cag ctg gta tat ccc caa gaa cct   3847
          Gly Ser Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro
          115             120                 125
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gat gat acc tgc atc ttc ccc gat ggg gag ccc tgc cct tct ggc cct   3895
Asp Asp Thr Cys Ile Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro
            130             135             140
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cta tct cag aaa aga tgc ttt gtt tat gtc tgg aag acc tgg g   3938
Leu Ser Gln Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp
        145             150             155
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gtaagagttt cccttctctg gcctgtcatt cacacttaaa ttcacttctt cctacctgat   3998
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               Asp Gln Tyr Trp Gln Val Leu Gly Gly Pro Val Ser
                   160                 165
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gga ctg agc atc ggg aca gac aag gca atg ctg ggc aca tat aac atg   4397
Gly Leu Ser Ile Gly Thr Asp Lys Ala Met Leu Gly Thr Tyr Asn Met
  170             175                 180
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gaa gtg act gtc tac cac cgc cgg ggg tcc cag agc tat gtg ccc ctc   4445
Glu Val Thr Val Tyr His Arg Arg Gly Ser Gln Ser Tyr Val Pro Leu
185             190                 195                 200
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gct cac tcc agt tca gcc ttc acc att act g gtaaggactg aggaggggac   4496
Ala His Ser Ser Ser Ala Phe Thr Ile Thr
                205                 210
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gcttggagcc cgtgaagggc caggcagctt gggttggttg aaaaatatgg ctgtgaaaga   4676
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agaagctgac agaaagaaga acttatggtt ctcactttct ctgactccaa tccca gac   4734
                                                              Asp
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cag gtg ccc ttc tct gtg agt gtg tct cag ctg cag gcc ttg gat gga   4782
Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala Leu Asp Gly
            215                 220                 225
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agg aac aag cgc ttc ctg aga aag cag cct ctg acc ttt gcc ctc cag   4830
Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe Ala Leu Gln
        230                 235                 240
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ctc cat gat ccc agt ggc tat ttg gct ggg gct gac ctt tcc tac acc   4878
Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu Ser Tyr Thr
        245                 250                 255
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tgg gac ttt ggt gac agt aca ggg acc ctg atc tct cgg gca ctc acg        4926
Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg Ala Leu Thr
260                 265                 270                 275

gtc act cac act tac cta gag tct ggc cca gtc act gca cag gtg gtg        4974
Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala Gln Val Val
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ctg cag gct gcc att cct ctc acc tcc tgt ggc tcc tct cca gtt cca        5022
Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser Pro Val Pro
                295                 300                 305

ggc act aca gat agg cat gtg aca act gca gag gct cct gga acc aca        5070
Gly Thr Thr Asp Arg His Val Thr Thr Ala Glu Ala Pro Gly Thr Thr
                310                 315                 320

gct ggc caa gtg cct act aca gaa gtc atg ggc acc aca cct ggc cag        5118
Ala Gly Gln Val Pro Thr Thr Glu Val Met Gly Thr Thr Pro Gly Gln
            325                 330                 335

gtg cca act gca gag gcc cct ggc acc aca gtt ggg tgg gtg cca acc        5166
Val Pro Thr Ala Glu Ala Pro Gly Thr Thr Val Gly Trp Val Pro Thr
340                 345                 350                 355

aca gag gat gta ggt acc aca cct gag cag gtg gca acc tcc aaa gtc        5214
Thr Glu Asp Val Gly Thr Thr Pro Glu Gln Val Ala Thr Ser Lys Val
                360                 365                 370

tta agt aca aca cca gtg gag atg cca act gca aaa gct aca ggt agg        5262
Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala Thr Gly Arg
                375                 380                 385

aca cct gaa gtg tca act aca gag ccc tct gga acc aca gtt aca cag        5310
Thr Pro Glu Val Ser Thr Thr Glu Pro Ser Gly Thr Thr Val Thr Gln
            390                 395                 400

gga aca act cca gag ctg gtg gag acc aca gct gga gag gtg tcc act        5358
Gly Thr Thr Pro Glu Leu Val Glu Thr Thr Ala Gly Glu Val Ser Thr
        405                 410                 415

cct gag cct gcg ggt tca aat act agc tca ttc atg cct aca gaa ggt        5406
Pro Glu Pro Ala Gly Ser Asn Thr Ser Ser Phe Met Pro Thr Glu Gly
420                 425                 430                 435

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Thr Ala
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ttaatcctct cctccag gc  tcc ctg agt ccc ctg ccg gat gac act gcc       6352
                       Gly Ser Leu Ser Pro Leu Pro Asp Asp Thr Ala
                           440             445


acc tta gtc ctg gag aag cgc caa gcc ccc ctg gat tgt gtt ctg tat      6400
Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr
    450             455             460


cgc tat ggc tcc ttt tcc ctc acc ctg gac att gtc c gtgagtcttg         6447
Arg Tyr Gly Ser Phe Ser Leu Thr Leu Asp Ile Val
465             470             475


cctacattgt ccgtaagctg gtggagggag gcgtgtgctg cttagggttg cccagtggaa    6507
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ggt att gag agt gct gag atc cta cag gct gtg tca tcc agt gaa gga      6730
Gly Ile Glu Ser Ala Glu Ile Leu Gln Ala Val Ser Ser Ser Glu Gly
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gat gca ttt gag ctg act gtg tct tgc caa ggc gg  gtgagtgtcc           6775
Asp Ala Phe Glu Leu Thr Val Ser Cys Gln Gly Gly
    495             500


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                                             Leu Pro Lys Glu Ala
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tgc atg gac atc tca tcg cca ggg tgt cag ctg cct gcc cag cgg ctg      6938
Cys Met Asp Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu
            515             520             525


tgt cag cct gtg ccc ccc agc cca gcc tgc cag ctg gtt ttg cac cag      6986
Cys Gln Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln
            530             535             540


gta ctg aag ggt ggc tca ggg acc tac tgc ctc aat gtg tct ttg gct      7034
Val Leu Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala
        545             550             555


gat gcc aat agc ctg gcg atg gtc agc acc cag ctt gtc atg cct g        7080
Asp Ala Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro
    560             565             570


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Ala Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu
        580                 585                 590

aca gct ttg ttg ctt gca tct ctg ata tac ag  gtgagatccc cgccatcctg      7295
Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg
        595                 600

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     Arg Arg Leu Met Lys Gln Gly Ser Ala Val Pro Leu Pro Gln Leu
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cca cac ggt aga acc cag tgg cta cgt ctg ccc tgg gtc ttc cgc tct      7991
Pro His Gly Arg Thr Gln Trp Leu Arg Leu Pro Trp Val Phe Arg Ser
        620                 625                 630

tgc ccc att ggt gag agc aaa ccc ctc ctc agt gga cag cag gtc         8036
Cys Pro Ile Gly Glu Ser Lys Pro Leu Leu Ser Gly Gln Gln Val
635                 640                 645

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Val Leu Leu Ala Val Arg Thr Thr Glu Gly Pro Arg Asp Arg Asp Trp
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Leu Gly Val Ser Arg Gln Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu
        35                  40                  45

Tyr Pro Glu Trp Thr Glu Ser Gln Gly Pro Asp Cys Trp Arg Gly Gly
    50                  55                  60

His Ile Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu Ile Gly Ala
65                  70                  75                  80

Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val
            85                  90                  95

Leu Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn Gly
            100                 105                 110
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Ser Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp
    115   120   125

Thr Cys Ile Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro Leu Ser
    130   135   140

Gln Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp Asp Gln Tyr Trp
145   150   155   160

Gln Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly Thr Asp Lys
          165   170   175

Ala Met Leu Gly Thr Tyr Asn Met Glu Val Thr Val Tyr His Arg Arg
        180   185   190

Gly Ser Gln Ser Tyr Val Pro Leu Ala His Ser Ser Ser Ala Phe Thr
      195   200   205

Ile Thr Asp Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala
    210   215   220

Leu Asp Gly Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe
225   230   235   240

Ala Leu Gln Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu
        245   250   255

Ser Tyr Thr Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg
      260   265   270

Ala Leu Thr Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala
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Gln Val Val Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser
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Pro Val Pro Gly Thr Thr Asp Arg His Val Thr Thr Ala Glu Ala Pro
305   310   315   320

Gly Thr Thr Ala Gly Gln Val Pro Thr Thr Glu Val Met Gly Thr Thr
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Pro Gly Gln Val Pro Thr Ala Glu Ala Pro Gly Thr Thr Val Gly Trp
        340   345   350

Val Pro Thr Thr Glu Asp Val Gly Thr Thr Pro Glu Gln Val Ala Thr
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Ser Lys Val Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala
    370   375   380

Thr Gly Arg Thr Pro Glu Val Ser Thr Thr Glu Pro Ser Gly Thr Thr
385   390   395   400

Val Thr Gln Gly Thr Thr Pro Glu Leu Val Glu Thr Thr Ala Gly Glu
        405   410   415

Val Ser Thr Pro Glu Pro Ala Gly Ser Asn Thr Ser Ser Phe Met Pro
        420   425   430

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Thr Glu Gly Thr Ala Gly Ser Leu Ser Pro Leu Pro Asp Asp Thr Ala
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Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr
    450                 455             460

Arg Tyr Gly Ser Phe Ser Leu Thr Leu Asp Ile Val Gln Gly Ile Glu
465                 470             475                     480

Ser Ala Glu Ile Leu Gln Ala Val Ser Ser Ser Glu Gly Asp Ala Phe
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Glu Leu Thr Val Ser Cys Gln Gly Gly Leu Pro Lys Glu Ala Cys Met
            500             505             510

Asp Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu Cys Gln
        515             520             525

Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu
    530             535                 540

Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala
545                 550             555                     560

Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly Gln Glu
            565             570             575

Ala Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu
        580             585             590

Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu Met Lys
    595             600             605

Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr Gln
    610             615             620

Trp Leu Arg Leu Pro Trp Val Phe Arg Ser Cys Pro Ile Gly Glu Ser
625             630             635                     640

Lys Pro Leu Leu Ser Gly Gln Gln Val
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Leu Leu His Val Ala Leu Met Gly Val Leu Ala Val Gly Thr Thr Glu
    10              15                  20


gtgagtgtgg gatgttggac atgaacaagt gtgaatttgg ggttgcacac ctgctctggt      162
ttttctctcc ctaaaatgga agatatcagt agtgcttcag gtgtctccca cccatttgat      222
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gaagggtaat gaggcacctc atccctctt tgggatgggc atgggtgaac acagcccagg       582
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gcatcttatg attctcttgt tcttgtggtg aggtattcag tgggataatt ctagatcctc     822
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```

```
ga   ccc aga gac agg gac tgg ctt ggt gtc tca agg cag ctc aga att      2369
     Gly Pro Arg Asp Arg Asp Trp Leu Gly Val Ser Arg Gln Leu Arg Ile
                 30              35                      40
```

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aaa gca tgg aac aga cag ctg tat cca gag tgg aca gaa agc cag ggg      2417
Lys Ala Trp Asn Arg Gln Leu Tyr Pro Glu Trp Thr Glu Ser Gln Gly
            45                  50                  55
```

```
cct gac tgc tgg aga g gtaggaactt ggcaatttcc agggaggata tggtggaaat    2473
Pro Asp Cys Trp Arg
            60
```

```
gggtggggag gggaacgggg ttgaatgtac ttaggaagat agggaaggaa aaggcataca    2533
```

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gggaggagaa gccaaggagc taattaatgc agctgccctt ttcag gt  ggc cac ata   2589
                                                      Gly Gly His Ile
                                                               65
```

```
tcc ctg aag gtc agc aat gat ggg cct aca ctg att ggg gca aat gct      2637
Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu Ile Gly Ala Asn Ala
            70                  75                  80
```

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tcc ttc tct att gcc ttg cac ttt cct aaa agc caa aag gtg ctg cca      2685
Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val Leu Pro
            85                  90                  95
```

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gat ggg cag gtc atc tgg gcc aac aac acc atc atc aat g gtgagtacct      2735
Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn
            100                 105                 110
```

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ctccgcctcc ttcccaaggt ccagaatccc tggtatcccc aatgagctca aggaatcctc    2795
ctcctctttt tttttttttt tttttacaaa ttatatatgt aacacatatt cactgcagaa    2855
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tgaggaatgc cagggattga gggagacttg ctgtcttctt ttcag gg  agc cag gtg   3811
                                               Gly Ser Gln Val


tgg gga gga cag ctg gta tat ccc caa gaa cct gat gat acc tgc atc     3859
Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp Thr Cys Ile
115             120         125             130

ttc ccc gat ggg gag ccc tgc cct tct ggc cct cta tct cag aaa aga    3907
Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro Leu Ser Gln Lys Arg
            135             140             145

tgc ttt gtt tat gtc tgg aag acc tgg g gtaagagttt cccttctctg        3955
Cys Phe Val Tyr Val Trp Lys Thr Trp
        150             155

gcctgtcatt cacacttaaa ttcacttctt cctacctgat ccccttcttt ttggtctcat    4015
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                                                              Asp


caa tac tgg caa gtt ctg ggg ggc cca gtg tct gga ctg agc atc ggg     4361
Gln Tyr Trp Gln Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly
            160             165             170

aca gac aag gca atg ctg ggc aca tat aac atg gaa gtg act gtc tac    4409
Thr Asp Lys Ala Met Leu Gly Thr Tyr Asn Met Glu Val Thr Val Tyr
        175             180             185

cac cgc cgg ggg tcc cag agc tat gtg ccc ctc gct cac tcc agt tca    4457
His Arg Arg Gly Ser Gln Ser Tyr Val Pro Leu Ala His Ser Ser Ser
    190             195             200

gcc ttc acc att act g gtaaggactg aggaggggac aaggccagtt gcagggcagg    4513
Ala Phe Thr Ile Thr
205

agaaggtggg gaggctgggc tggacaggaa aggggaaaga ggaaatggtg tgtaacctta    4573
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acttatggtt ctcactttct ctgactccaa tcccag ac  cag gtg ccc ttc tct      4746
                                        Asp Gln Val Pro Phe Ser
                                                            215

gtg agt gtg tct cag ctg cag gcc ttg gat gga agg aac aag cgc ttc      4794
Val Ser Val Ser Gln Leu Gln Ala Leu Asp Gly Arg Asn Lys Arg Phe
                220             225                 230

ctg aga aag cag cct ctg acc ttt gcc ctc cag ctc cat gat ccc agt      4842
Leu Arg Lys Gln Pro Leu Thr Phe Ala Leu Gln Leu His Asp Pro Ser
            235             240             245

ggc tat ttg gct ggg gct gac ctt tcc tac acc tgg gac ttt ggt gac      4890
Gly Tyr Leu Ala Gly Ala Asp Leu Ser Tyr Thr Trp Asp Phe Gly Asp
        250             255             260

agt aca ggg acc ctg atc tct cgg gca ctc acg tcc act cac act tac      4938
Ser Thr Gly Thr Leu Ile Ser Arg Ala Leu Thr Val Thr His Thr Tyr
    265             270             275

cta gag tct ggc cca gtc act gca cag gtg gtg ctg cag gct gcc att      4986
Leu Glu Ser Gly Pro Val Thr Ala Gln Val Val Leu Gln Ala Ala Ile
280             285             290             295

cct ctc acc tcc tgt ggc tcc tct cca gtt cca ggc act aca gat agg      5034
Pro Leu Thr Ser Cys Gly Ser Ser Pro Val Pro Gly Thr Thr Asp Arg
                300             305             310

cat gtg aca act gca gag gct cct gga acc aca gct ggc caa gtg cct      5082
His Val Thr Thr Ala Glu Ala Pro Gly Thr Thr Ala Gly Gln Val Pro
                315             320             325

act aca gaa gtc atg ggc acc aca cct ggc cag gtg cca act gca gag      5130
Thr Thr Glu Val Met Gly Thr Thr Pro Gly Gln Val Pro Thr Ala Glu
            330             335             340

gcc cct ggc acc aca gtt ggg tgg gtg cca acc aca gag gat gta ggt      5178
Ala Pro Gly Thr Thr Val Gly Trp Val Pro Thr Thr Glu Asp Val Gly
    345             350             355

acc aca cct gag cag gtg gca acc tcc aaa gtc tta agt aca aca cca      5226
Thr Thr Pro Glu Gln Val Ala Thr Ser Lys Val Leu Ser Thr Thr Pro
360             365             370             375

gtg gag atg cca act gca aaa gct aca ggt agg aca cct gaa gtg tca      5274
Val Glu Met Pro Thr Ala Lys Ala Thr Gly Arg Thr Pro Glu Val Ser
            380             385             390

act aca gag ccc tct gga acc aca gtt aca cag gga aca act cca gag      5322
Thr Thr Glu Pro Ser Gly Thr Thr Val Thr Gln Gly Thr Thr Pro Glu
            395             400             405

ctg gtg gag acc aca gct gga gag gtg tcc act cct gag cct gcg ggt      5370
Leu Val Glu Thr Thr Ala Gly Glu Val Ser Thr Pro Glu Pro Ala Gly
        410             415             420

tca aat act agc tca ttc atg cct aca gaa ggt act gca g gtaagggggc      5420
Ser Asn Thr Ser Ser Phe Met Pro Thr Glu Gly Thr Ala
        425             430             435
```

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ctgttttcag gttagtcatt tgcttttga ctttgcctct ttaatcctct cctccag       6317
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gc  tcc ctg agt ccc ctg ccg gat gac act gcc acc tta gtc ctg gag      6364
Gly Ser Leu Ser Pro Leu Pro Asp Asp Thr Ala Thr Leu Val Leu Glu
        440              445             450
```

```
aag cgc caa gcc ccc ctg gat tgt gtt ctg tat cgc tat ggc tcc ttt      6412
Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr Arg Tyr Gly Ser Phe
        455              460             465
```

```
tcc ctc acc ctg gac att gtc c gtgagtcttg cctacattgt ccgtaagctg       6464
Ser Leu Thr Leu Asp Ile Val
    470              475
```

```
gtggagggag gcgtgtgctg cttagggttg cccagtggaa gcacaccttg gaaggaatta    6524
ctcacctgga caaggagaat acccagatcc caggggtttc atatgaaggc agaatgggat    6584
tagggaggca gcccgaggac cttcctggcc atgggccttg ggggaggata agtagaggag    6644
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tctcagactt aaaaaaatct tgcaactttg cag ag  ggt att gag agt gct gag     6697
                                        Gln Gly Ile Glu Ser Ala Glu
                                                            480
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atc cta cag gct gtg tca tcc agt gaa gga gat gca ttt gag ctg act      6745
Ile Leu Gln Ala Val Ser Ser Ser Glu Gly Asp Ala Phe Glu Leu Thr
        485              490             495
```

```
gtg tct tgc caa ggc gg  gtgagtgtcc cacggttgcc ctgagaactc             6792
Val Ser Cys Gln Gly Gly
    500
```

```
ctggggtgac tgctgtcctg ttctctggtg tctagtgtcc cttcccagat tccctgacgt    6852
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```
aagctgacat ctctcccag g cta ccc aag gaa gcc tgc atg gac atc tca       6902
                       Leu Pro Lys Glu Ala Cys Met Asp Ile Ser
                           505              510
```

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tcg cca ggg tgt cag ctg cct gcc cag cgg ctg tgt cag cct gtg ccc      6950
Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu Cys Gln Pro Val Pro
515              520             525             530
```

```
ccc agc cca gcc tgc cag ctg gtt ttg cac cag gta ctg aag ggt ggc      6998
Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu Lys Gly Gly
        535              540             545
```

```
tca ggg acc tac tgc ctc aat gtg tct ttg gct gat gcc aat agc ctg      7046
Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala Asn Ser Leu
        550              555             560
```

```
gcg atg gtc agc acc cag ctt gtc atg cct g gtaggtagtt ggacaagagg        7097
Ala Met Val Ser Thr Gln Leu Val Met Pro
            565                 570


taggatgaag acacggggag atggtagagg ttacctacta gaggaagcag acactgaatg       7157


cagccgtatc tgggattcca cccatag gg  caa gaa gca ggc ctc agg cag gct       7210
                                Gly Gln Glu Ala Gly Leu Arg Gln Ala
                                        575                 580


cct ctg ttc gtg ggc atc ttg ctg gtg cta aca gct ttg ttg ctt gca        7258
Pro Leu Phe Val Gly Ile Leu Leu Val Leu Thr Ala Leu Leu Leu Ala
            585                 590                 595


tct ctg ata tac ag  gtgagatccc cgccatcctg ctcccactcc tttaccccтt        7312
Ser Leu Ile Tyr Arg
            600


attaccacca ccactcttcc tcatgggaag aagaaaccac caaccccttt gggaaagtgt       7372
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gaccaccact aaccagtatc cctgcttttc tcccaatatc ag g cga aga ctt atg       7907
                                              Arg Arg Leu Met
                                                          605


aag caa ggc tca gca gtc ccc ctt ccc cag ctg cca cac ggt aga acc        7955
Lys Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr
            610                 615                 620


cag tgg cta cgt ctg ccc tgg gtc ttc cgc tct tgc ccc att ggt gag        8003
Gln Trp Leu Arg Leu Pro Trp Val Phe Arg Ser Cys Pro Ile Gly Glu
            625                 630                 635


agc aaa ccc ctc ctc agt gga cag cag gtc tgagtgctct tatgtgaagt           8053
Ser Lys Pro Leu Leu Ser Gly Gln Gln Val
            640                 645


catgatttac ccaggtggac agcaaggcct gtcttttctc tggtcttccc tcagagacta       8113
ccattgcctg aaataaagac tcagaacttg                                        8143
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<212>   PRT
<213>   Bos taurus


<400>   6
Met Asp Leu Val Leu Arg Lys Tyr Leu Leu His Val Ala Leu Met Gly
1               5                  10                  15


Val Leu Ala Val Gly Thr Thr Glu Gly Pro Arg Asp Arg Asp Trp Leu
            20                  25                  30
```

Gly Val Ser Arg Gln Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu Tyr
    35   40   45

Pro Glu Trp Thr Glu Ser Gln Gly Pro Asp Cys Trp Arg Gly Gly His
    50   55   60

Ile Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu Ile Gly Ala Asn
65   70   75   80

Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val Leu
                85   90   95

Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn Gly Ser
            100   105   110

Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp Thr
        115   120   125

Cys Ile Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro Leu Ser Gln
    130   135   140

Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp Asp Gln Tyr Trp Gln
145   150   155   160

Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly Thr Asp Lys Ala
            165   170   175

Met Leu Gly Thr Tyr Asn Met Glu Val Thr Val Tyr His Arg Arg Gly
        180   185   190

Ser Gln Ser Tyr Val Pro Leu Ala His Ser Ser Ser Ala Phe Thr Ile
        195   200   205

Thr Asp Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala Leu
    210   215   220

Asp Gly Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe Ala
225   230   235   240

Leu Gln Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu Ser
            245   250   255

Tyr Thr Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg Ala
            260   265   270

Leu Thr Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala Gln
        275   280   285

Val Val Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser Pro
    290   295   300

Val Pro Gly Thr Thr Asp Arg His Val Thr Thr Ala Glu Ala Pro Gly
305   310   315   320

Thr Thr Ala Gly Gln Val Pro Thr Thr Glu Val Met Gly Thr Thr Pro
            325   330   335

Gly Gln Val Pro Thr Ala Glu Ala Pro Gly Thr Thr Val Gly Trp Val
        340   345   350

```
Pro Thr Thr Glu Asp Val Gly Thr Thr Pro Glu Gln Val Ala Thr Ser
        355             360             365

Lys Val Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala Thr
    370             375             380

Gly Arg Thr Pro Glu Val Ser Thr Thr Glu Pro Ser Gly Thr Thr Val
385             390             395                     400

Thr Gln Gly Thr Thr Pro Glu Leu Val Glu Thr Thr Ala Gly Glu Val
                405             410             415

Ser Thr Pro Glu Pro Ala Gly Ser Asn Thr Ser Ser Phe Met Pro Thr
            420             425             430

Glu Gly Thr Ala Gly Ser Leu Ser Pro Leu Pro Asp Asp Thr Ala Thr
        435             440             445

Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr Arg
    450             455             460

Tyr Gly Ser Phe Ser Leu Thr Leu Asp Ile Val Gln Gly Ile Glu Ser
465             470             475                     480

Ala Glu Ile Leu Gln Ala Val Ser Ser Ser Glu Gly Asp Ala Phe Glu
            485             490             495

Leu Thr Val Ser Cys Gln Gly Gly Leu Pro Lys Glu Ala Cys Met Asp
        500             505             510

Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu Cys Gln Pro
        515             520             525

Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu Lys
    530             535             540

Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala Asn
545             550             555                     560

Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly Gln Glu Ala
            565             570             575

Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu Thr
        580             585             590

Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu Met Lys Gln
        595             600             605

Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr Gln Trp
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Leu Arg Leu Pro Trp Val Phe Arg Ser Cys Pro Ile Gly Glu Ser Lys
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Pro Leu Leu Ser Gly Gln Gln Val
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